



Modelling of Institutional Changes in Transition Countries - the Gap Between the Theory and Practice

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ABSTRACT

The first part discusses the consequences of the deficit of real institutional changes in post-socialist SEE countries, and their substitutions by the various anti-developmental institutional imitations, which essentially had the character of alternative quasi-institutions and were in a function of enrichment for the privileged individuals. It points to the importance of neo-institutional economic theories (NET), which provide a sound grounds and recommendations for explanation of the imitation changes, which had anti-institutional and anti-development character. Theoretical explanations of anti-institutional changes confirm the conclusion that real institutional changes can not be developed on its opposites, in the conditions of feigning the economic freedom and democracy, the government stability, and the accompanying development of social pathology. The present paper is dedicated to the formation of a theory of institutional modelling that includes principles and ideas that reflect the laws of societal development within the framework of institutional economic theory. The scientific principles of institutional modelling, increasingly postulated by the classics of institutional theory, are discussed. Scientific ideas concerning institutional modelling are proposed on the basis of the results of original design, formalisation and measurement of economic institutions. Applied aspects of the institutional theory of modelling are considered.

“Negative externalities will not disappear by itself.”

F. Fukuyama

INTRODUCTION

Transition in the SEE countries was not objectively dependent process, conducted according to specific transformational paths. It has spawned different gnoseological levels, with uncertain criteria for the assessment of human behavior (especially economic), with undefined development objectives and strategies, in the conditions of social and economic instability, and a range of opportunistic behavior. This process did not have a elaborated, complete, and consistent theory that would in a scientific-methodological way to explain the variety of specific and often mutant practical phenomena. One of the dominant phenomenon was the formation of imperial rhetorical facade, which has enabled a long-term substitution for developing the material and human values (money).

Throughout the history of society there was an existing development paradigm with the appropriate criteria and value systems, which have always been associated with the interests. However, in most transition countries the neoliberal anti-development (essentially: crisis) paradigm was formed. Its basis was immoral, inhumane, and dogmatic ideology of political robbery (Oppenheimer, 1922). A hegemonic (greedy) order, raised on this foundation was imposed by the nomenclature of government, due to the realization of privileged interests of self-appointed elite. Elitist dirigisme (based on socialist) had a dominant party-state prognostication. It paradoxically appeared on the apologetic criticism of state dirigisme. Proclaimed mass was replaced by privileged individualism. In addition to the many abuses and negative practical manifestations, the paradoxical, ideological and contradiction context of neoliberalism had its doctrinal terminological, institutional, developmental, cognitive, strategic, interest, redistributive, ownership, civilizational, geopolitical, or/and geoeconomic sense (Scekic, Draskovic and Delibasic, 2016).

During the period of post-socialist transition, the whole system of anti-institutional and quasi-institutional factors was established. From the aspect of development these factors had a hindering and destructive influence. Therefore, they had a very negative impact on economic growth. The aforementioned factors had a direct synergy effect on the generation creating an institutional vacuum (in the early stage of transition), followed by the long-term conglomerated unsystematic approaches.

1. INSTITUTIONAL CHANGES AND ALTERNATIVES

In academic literature, a detailed research was necessary to explain an adequate theory regarding the current socio-economic situation. Many authors, including M. Blaug (1994, p. 650), claim that NET is suitable for that, because it contains pragmatic and multidisciplinary scientific doctrine, which identifies causes and trends of the transition processes and changes. NET deals with institutions, and institutional changes were supposed to be the most important characteristics of transition (Draskovic, 2017; Draskovic, 2017a; Draskovic, M., Draskovic, V., Bilan and Delibasic, 2016; Draskovic, M., Bauk, Streimikiene and Draskovic, 2017). NET is directly linked with the choice of priority ways of regulating the economy and society, which have practically shown great ability of manipulation, imitation, misuse, improvisation and usurpation. All this happened under the cover of alleged theoretical model of neoliberalism. NET was objectively able to explain many transformational pitfalls associated with:

- institutional vacuum,
- transformational downfall (of all economic and social indicators),

- antagonism of social subsystems (political, economic, cultural, ethical, social, motivational, technological, etc.),
- rapacious privatization,
- failed expectations of the people, and
- mythical monistic dogma.

Theoretical interpretations (North and Thomas, 1973; North, 1981, 1984, 1987, 1989) indicate that institutions are generally accepted rules, norms and mechanisms which contribute enabling successful functioning of the organizations, as well as the realization of economic, legal, political and other activities. Institutions have several major functions:

- *regulation, coordination and limitation* of human behavior,
- *reduction* of transaction costs,
- *assistance* in adjusting to the change, minimizing risks, uncertainty and entropy, as well as the rational allocation of resources,
- *stimulation and motivation* in the realization, and linking economic relations, resources, subjects and activities,
- *protection* of opportunistic behavior, and
- *promotion* of economic development.

All formal and informal institutions are always complemented by positive normative acts, which regulate the rights, obligations and permitted forms of economic behavior, as well as sanctions in case of its violation (Sueldo and Streimikiene, 2016, pp. 90-105). When all of this is applied, it becomes clear how and why the main transition processes lost control in most of the transition countries. Specifically, under the pressure of the ruling nomenclature, the radical, positive and synchronized institutional changes, recommended by D. North (1994, p. 79) were ignored. This refers to the changes in the attitude and form of business, ownership, control mechanisms, political and normative regime. That way was disabled not only institutional competition, but also the process of establishing a rational, consistent and overall institutional framework, which is a common denominator and a precondition of all other changes, as well as the socio-economic development.

Nevertheless, the transition preserved some forms of *institutional transformation*. It had an innovative character in the part of transformation and evolution of economic and social order, as well as appropriate transformation and transaction costs. However, instead of eliminating and/or reforming the old (socialist), and building the effective institutions, in the conditions of chronic deficit of the rule of law, numerous *recombinant* forms of quasi-institutional relations were established (paternalism, monopolistic, lobbyism, social pathology, the informal economy, annuity-oriented behavior, dominance of politics over economics, etc). Their common denominator was the dominance of institutional monism of neoliberal-clan type. Economic development is not possible without an *institutional pluralism* (North, Walis iand B. Weingast, 2009; Ciegis et al., 2015, p. 106; Drašković, 2014; Erznkyan, Delibasic and Grgurevic, 2014).

Civil war, disintegration of the state, political monopolies, and restrictions imposed on the market were main factors for the flourishing of uncontrolled markets. Institution of market regulation in many areas has been dysfunctional. The long-term multiplication of those conditions has led to the creation of the so-called alternative (shadow, parallel) institutions (Draskovic, Bauk and Delibasic, 2016). They had destructive and selective impact on the use of economic resources. Furthermore, they prevented not only real institutional changes, but also institutional adaptation, institutional control, and institutional competition. It strengthened the specific forms of total control (Goffman, 1968, p. 41) in social and economic flows by the powerful nomenclature-

lobbying clans (administrative-bureaucratic groups - Mc Auley, 1991, p. 26). Phenomenology of clans rested on the alternative *meta-institutionalization* of highly interest type (i.e. politicians fighting for private rent - Marcouiller and Young, 1995, pp. 630-646; Infante and Smirnova, 2016, p. 216).

Consequently, instead of good rules, some "players" and their "connections" dominated the institutions (Fernandez-Guadano, 2015, pp. 192-200). Public policies (of radical neoliberal type) were directly or indirectly abused - guided by the dominant interests of the nomenclature of the authorities and their lobbyists, which is varified through affirmation of violence in society (North, Wallis and Weingast, 2009). Therefore, they are often marked as quasi-neoliberal. That has deformed and reduced the socio-economic reality (the order), and the overall institutional structure. There was the creation of conglomerate nonsystem (organizational, institutional and normative) was created. In practice, it has manifested through various substitutions.

The market was substituted by monopolies; efficient and massive private sectors by rare and privileged riche; the motivation and competition by privileges; entrepreneurship by rent-oriented (Buchanan, Robert and Tullock, 1980) and gray-economic behavior; democracy by party lobbying, nepotism and log-rolling; political pluralism by totalitarianism of the ruling parties and coalitions; institutions in system and institutional vacuum, etc. In such environment, the socialist vices have become ideals. The cultural values were on decline (Vveinhardt and Andriukaitiene, 2015, pp. 205-210). The implementation of real reforms was - nonsense. Economic results were catastrophic. The crisis was still present in many variations.

1. IMPORTANCE OF THE N.E.T. FOR EXPLANATION OF IMITATION INSTITUTIONAL CHANGES IN THE SEE COUNTRIES

Institutional imitations, "misconceptions", monistic illusions, and practical phenomenology of anti-institutionalization could be phenomenologically explained by applying unilateral and interests individualism. It is rhetorically, uncritically and vulgarly glorified through quasi-neoliberal mythology (ideology). Appart from being accompanied by non-market enrichment (tendency of privileged interests of minority), essentially it was conflicting. Apparently it was not based on consistency (mass individualism), but on the privileged (rare, minority) individualism. Such *improvized individualism*, supported by the nomenclature of government, was and still remains the greatest opponent of institutional changes. It has led to many practical abuses and *deformations* (market relations, business environment, competition, etc.), described in the hypothetical "model 23 D" (V. Draskovic, and M. Draskovic, 2012, pp. 196-196). It has led to institutional nihilism (Ibid., p. 203), which have we tried to explain (Ibid., p. 198) through a simple formula that actually sublimated the essence of transition (neoliberal) fraud (meta-phor). It is an extended (approximate) mathematical model: $Lp + Ha + S = WPI$, where AR stands for - the loss of people, Ha - help from abroad, S - smuggling and WPI - a wealth of privileged individuals.

Monistic neoliberal instrumentalization and the corresponding quasi-institutional improvisations and operationalisations are still present in some SEE countries, although economic theory and practice strongly verify the indispensable developmental need for the institutional pluralism. On the theoretical level, they are manifested through apologetic elaborations, and in practice through various forms of quasi-sociopathic type. Every monism, apologetics and fetishism in theory are counter-productive because they idealize and mystify the economic reality (Draskovic, 2016).

Neoliberal (in the institutional sense: monistic) "modelling" of economic reality was manifested through the rhetoric glorification of the alleged apsolute advantages of private property, entrepreneurial initiative, economic freedoms, effective owners, competition, unlimited markets and so-called "minimal" states. That rhetoric was accompanied by various forms of quasi-neoliberal behavior, which has socio-pathological and opportunistic origin. It was a phenomenological and

etymological ignoring of actual conditions in realizing the economic choices, and the causes of great social and economic problems, which were visible to the naked eye, and even distorted by the media (Draskovic, Bauk and Delibasic, 2016).

Essentially, the formal and informal institutions were abused, bypassed, vulgarized and reduced at different interests levels. Through the spread of opportunistic behavior, alternative institutions had parasitical and reversible impact on public policy, significantly obeying the formal and informal institutions. One of the major public policies was macroeconomic, which had neoliberal character and was supported by the apologetics of *profession's blindness* (Krugman, 2009, p. 2). Consequently, there was no formation of the so-called *good institutions*, proposed by D. Rodrik (2005, 973). As a result, transformational fall (term by Kornai, 1994) from 1991 to 1995 was replaced by *extended transition* (1995 to present).

Modelling of the institutional changes in the SEE countries was strongly impacted by these negative factors. Multiple paradox of neoliberal policies caused the crisis of a system of values in economics and negative selection of the value criteria in socio-economic development. There were several valuable theoretical attempts to highlight the imperative need for modelling of institutional changes in accordance with the recommendations of NET representatives. Some authors have, often critically and competently, written about the great importance of NET in order to explain the reality of transition and some development concerns. A significant suggestion was given by M. Delibasic (2016, p. 152), which refers to the hypothetical matrix model for researching the foundation for economic development, which included the most important *research parameters*: property rights, public choice, institutional pluralism, relationship between formal and informal institutions, level and impact of alternative institutions, relationship between politics and economics, etc.

NET does not deny the basic and universal attributes of homo economicus: rationality, sovereignty (autonomy) in decision making, and choice, subjugation of exact budget (own interests and preferences), acting in accordance with the interests, and in the state of full awareness. However, it puts this behavior in the context of *institutions* as universal norms and rules of behavior that essentially act twofold: restrictively and motivationally. Therefore, the economic rationality under the influence of institutions has manifested as a limited institutional rationality (of pluralist model).

Despite these theoretical findings, analysis and recommendations of NET, in reality it all remained a dead letter, because it was neglected by the nomenclature authority, which was the creator of official economic policy (neoliberal). Regarding a numerous practical problems of "extended transition" (delay of real institutional changes) in the SEE countries from the current perspective and through the prism of many previous theoretical analysis that we conducted, we arrive to the conclusion that the modelling of existing (mutant, quasi-institutional) order was created by a privileged nomenclature authority influenced by numerous internal and external factors (Table 1). In addition to many other consequences (levels 1-5), as major and undoubted result of almost 30 year long transition in the SEE countries are *weak institutions, as well as social and economic crisis* (level 6).

Civilizational path of socio-economic development has affirmed the principles of pluralism, gradualism, synergism, selective universality (in terms of using role models), and democracy. They are opposed to all the forms of absolutism, monism, uncontrolled development, and party determinism.

However, SEE countries (in the absence of consistent development strategy) have opted for erroneous concepts of institutional improvisation and imitations (rather than creation), rhetoric (rather than implementation and actual change), rent-oriented and narrow-interests type of motivation (rather than profit-oriented and mass-interests), party-controlled institutional environment (rather than transparency).

Table 1. Factors impacting modelling of institutional structure in the SEE countries

Internal factors			External factors		
↓	↓	↓	↓	↓	↓
Socio-cultural capital	Path Dependency	Public choice	Globalization	Exemplary models (neoliberal ideology)	Geopolitics and geoeconomics
↓	↓	↓	↓	↓	↓
Nomenclatures of authorities					
↓					
1	rapid and indiscriminate demolition of socialist institutions, creation of social and economic non-system (organizational, institutional and normative vacuum), and oligarchical new elite				
↓					
2	continuation of autocratic political regime (the domination of politics), establishing a new monistic system, and government failure				
↓					
3	asymmetry of information, the existence of powerful groups of influence, groups with special interests, active lobbyists, strong bureaucracy, imperfection of the political process, processes of decision making monopolization and the abuse				
↓					
4	organized interests of small privileged groups (in accessing the resources), institutional monism, manipulation and social pathology, practical quasi-manifestations				
↓					
5	opportunistic behavior, alternative institutions, increase transaction costs, violence in the society, deficit of the rule of law, weak and not transparent institutions, social disparities, and appropriate consequences				
↓					
6	Weak institutions, social and economic crisis				

Sources: adapted from Draskovic, 2014; Delibasic, 2016; Drachkovich, M.V., Drachkovich, V.D., Bilan, Yu., 2017; Draskovic, M., Draskovic, V., Bilan, Y., Delibasic, M., 2016.

Therefore, the alternative institutions have strengthened, hindering the real institutional evolution, acting anti-institutionally and regardless of the recommendations of the NET: not stimulating the legal behavior, nor limiting the opportunistic behavior. The outcome of neoliberal type institutional monism has led to numerous problems, inequality, and the ongoing socio-economic crisis.

3. MODELLING OF ECONOMIC INSTITUTIONS

The organisational routines of R. Nelson and S. Winter, the transaction cost theory of R. Coase, D. North's concept of economic institutions and E. Ostrom's institutional design, together with many other concepts, have been extensively referred to in theoretical and practical studies. That being said, no study has been carried out to date that systematises the principles and ideas of institutional level modelling into a single theory. The aim of this study is to develop an institutional theory of modelling – that is, a system of scientific principles and ideas that generalises the experience and reflects the laws of the development of society within the framework of institutional economic thinking.

3.1 Institutional design

The systematisation of principles and ideas of the theory of institutional simulation should be carried out consecutively, beginning from the simplest level of simulation, i.e., institutional design, and concluding with the most complex level consisting in a description of the evolution of institutions. For intermediate levels of modelling, the following stages of the modelling approach can be consistently included: systematisation, formalisation, classification, distribution and measurement of economic institutions. It should be noted that economic models include such formal constructions, in which input and output models can be isolated, as well as the presence of a control parameter – in other words, feedback. By economic institutions, in the interpretation of 1993 Nobel Prizewinner D. North (1990), we refer to the established norms of interaction between economic agents. The monitoring of the implementation of these norms is carried out either by agents themselves, their superiors or according to regulatory procedures.

It is noted that the organisational routines of R. Nelson and S. Winter, widely used in economic modelling (Nelson and Winter, 1982), rely on a similar sense of economic institutions, to which we apply the formalism of the institutional lifecycle (Popov, 2006). An important place in the field of economic institution design belongs to the winner of the 2009 Nobel Economics Prize, E. Ostrom. Ostrom examined practices in situations where the state is not able to create institutional arrangements or get them to fully comply with formal rules. The sustainable existence of Ostrom's (2000, p. 148) common-pool resources is possible only in cases where the design of the system for the operation of shared resources corresponds to a specific set of principles:

- presence of clear group boundaries,
- presence and clear specification of local resource-use rules,
- involvement of group members in the process of establishment and modification of rules,
- participation in the monitoring of compliance with the rules,
- gradualist approach to the implementation of sanctions,
- presence of conflict resolution mechanisms,
- minimal recognition of the right to self-organisation on the part of the authorities.

Consequently, the first scientific principle of the theory of institutional modelling should include a provision stating that *the design of economic institutions is based on the implementation of specific formation rules specifying resource use* similar to E. Ostrom's principles of institutional design. The author of this study has developed the model of institutional design of knowledge generation by economic entities on the basis of the principles of institutional design together with the staff of the Institute of Economics of UB RAS (Popov and Vlasov, 2006). When constructing a model of institutional design, the following stages of institutional design have been identified: analysis of the institutional knowledge generation environment; problem statement; goals and objectives; the development, implementation and updating of the institutional project; and monitoring the functioning of the institutional environment.

The first and last stages of the developed model are continuous, indicating that institutional design is a continuous activity. Continuity of institutional design, in turn, determines the flexibility of the institutional environment. The timely detection of discrepancies in the external and internal conditions of the existing institutional environment contributes to its rapid adaptation, while committing fewer resources. Continuity of institutional design also reveals any institutional dysfunction in the initial stages and thus prevents a decline in their effectiveness. The stability of institutional changes in institutions under development depends on how accurately the principles of institutional design are taken into account and complied with.

The model allowed the authors to formalise and precisely detail the stages of institutional design, while providing a platform for reducing the degree of uncertainty in this type of activity, as well

as drawing the attention of leaders to the need for accountability and the analysis of the institutional environment when planning the development of an economic entity. In this way, the author's model of institutional design of knowledge generation business entities is developed on the basis of project management principles and includes such stages as the analysis of the institutional environment (assuming use of the resource indicator of differentiation of knowledge, the institutional atlas model, transactional speed of knowledge growth and the coefficient of institutional development of knowledge generation); formulation of the problem, goals and objectives of institutional design; development of the institutional project (taking into account the principles of institutional design); implementation of the institutional project; its adjustment and monitoring of the functioning of the institutional environment. The novelty of the author's model consists in the systematisation and expansion of the methodological set of tools of institutional design in connection with processes of knowledge generation.

The theoretical significance of the developed model consists in the synthesis of the results obtained as part of the dissertation research with existing management tools that can reduce the uncertainty of institutional design of knowledge-generating business entities. The practical significance of this model consists in the possibility of its use in the analysis and planning of development as a process of knowledge generation as well as in the activities of economic entities in general. Consequently, the first scientific idea of the institutional modelling theory consists in the active development of *business models for the real economy based on the principles of institutional design*, for example for the generation of new knowledge.

It should be noted that the practical implementation of the scientific concept leads to the development of methods of evaluation of knowledge generation in the enterprise.

3.2 The Systematisation of Institutions

The most successful experience of the systematisation of economic institutions to date is G. Kleiner's (2003) system-integrated theory of the enterprise. In the system-integration model, all factors (in essence, economic institutions) are divided into seven levels from the mental activities of the participants in the activities of the enterprise to the experience of the functioning of the market. The systematisation of economic institutions can also be based on the market potential model of the enterprise. Elements of the enterprise market potential can be structured according to the four functions of management – planning, organising, directing, controlling – and the three types of activity of the enterprise, consisting of analysis, manufacturing and communications. At the same time, economic institutions can be classified according to their use of four types of resources: human, material, financial, information.

In both models, the institutions are grouped by the criteria of the specific functions that they perform. Thus, the second scientific principle of the theory of institutional modelling can be formulated as follows. *The systematisation of economic institutions should be based on defined system performance criteria, releasing various functions of institutions*, similar to G. Kleiner's theory of levels of functional system-integration or elements of the market potential of the enterprise. What are the possible approaches to the classification of micro-economic institutions? We may note in passing the classification approaches taken by O. Favro's (2000) positioning theory on a two-coordinate plane, O. Williamson's (1979) hierarchical "objectives tree" system and G. Kleiner's pyramidal representation of the systematisation factors of the enterprise, etc.

Since the basic characteristics of institutions consist in the exogeneity or endogeneity of their formation and use, and the dissemination of these institutions in the performance of individual employees or the enterprise as a whole, the graphical representation of the microeconomic classification of institutions can be represented in the coordinates "*institutional exogeneity / endogeneity – belonging to the employee / company*" (Popov, 2012). The obtained classification illustrates the fact that all economic institutions are the subjects of evolutionary development. That is, the

evolution of micro-economic institutions can be analysed within the framework of institutional-evolutionary micro-economic theory. Only when relying on a science-based formation of the institutional structure of the economic system can the correct economic decisions be taken to ensure the predictability of economic results.

It should be noted that the fruitfulness of the idea concerning the unity of the analysis of economic systems based on synthetic evolutionary theory consists in allowing institutional approaches to be distributed in the field of evaluation of the social sphere of society; in other words, it significantly expands the scope of proper economic analysis. The system classification of economic institutions reveals the saturation, vector and the basic block of the development of institutional economic theory. Thus, the second scientific idea of the theory of institutional modelling consists in *the possibility of classifying economic institutions according to the coordinates that distinguish exogenous or endogenous institutions and whether ownership is concentrated in individuals or groups of individuals*, like O.Favro's classification theory or classification according to micro-economic institutions.

The practical significance of the classification of economic institutions is in the development of techniques for the management of institutional effects. For example, the proprietary methodology for controlling endogenous opportunism in the "principal – agent" system was formed within the given direction.

3.3 Distribution of Institutions

The distribution model for economic institutes can be presented in the form of a hierarchy of rules according to J. Buchanan. Buchanan (1962), who won the Nobel Prize in Economics in 1986, was not representative of classical institutionalism. However, his researches, devoted to methodological individualism and the evaluation of policy as a process of exchange, largely relied on the institutional analysis of economic activity. Based on an account of the interests of politicians, Buchanan called for the formation of the constitution of economic policy, i.e., a set of rules that define the restrictions on the activities of certain individuals. We note that neo-institutional theory of public choice has to a large extent been formed on the basis of the works of J. Buchanan. In other words, Buchanan postulated a hierarchy of economic institutions from the basic institutions in the form of state laws to rules that are guided by individuals. Consequently, the third principle of institutional modelling theory consists in the modelling of the distribution of *economic institutions being possible on the basis of functional data content hierarchy of established norms of interaction between economic agents*, resembling Buchanan's distribution of politico-economic institutions.

The model of distribution of economic institutions in the form of a hierarchical structure consists of an institutional atlas. Since the atlas in the conventional sense is a multifactorial, hierarchical system characteristic of the object of study, the institutional atlas under the framework in this work will involve a summary classification of institutions, which combines several types of systematisation of these institutions according to various criteria. The hierarchical systematisation of institutions is possible according to the following criteria: place of origin, areas of expertise, control functions and areas of activity. Endogenous institutions can be distinguished from exogenous institutions according to place of origination, with the former arising inside of the object and the latter formed outside of the object. It is expedient to distinguish between institutions (e.g. development institutions) in terms of areas of knowledge, i.e. social, technological, economic, political and cultural.

Institutions of planning, organising, stimulation and control can be distinguished in terms of their control functions. Norms of interaction between economic agents may be divided according to areas of activity into the institutions of production, distribution, sale and consumption. The above systematisation criteria form an atlas of institutions of development in which they are presented in a certain order. Hence, the third scientific idea of institutional theory of modelling consists in the

distribution of *hierarchical institutions be capable of representation in the form of an institutional atlas, structuring institutions according to the function of fulfilling norms of interaction between economic agents, similar to the formation of an atlas of institutions of development.*

The selected research idea was aimed at developing methods for determining weaknesses in the institutional structure based on a comparison of actual and theoretically possible institutional atlases. For example, a study conducted by the Institute of Economics of UB RAS in 2008-2009 revealed a lack of development of the system of development institutions in the Sverdlovsk region, especially in the areas of institutions of planning and promotion.

3.4 Measurement of Institutions

At the basis of the measurement of economic institutions is 1991 Nobel Economics Prizewinner Ronald Coase's theory of transaction costs. The introduction of transaction costs allowed Coase (1937) to designate the boundaries of the firm from the in-house comparison and market costs, as well as the need for the intra-firm planning of economic activity. In his famous article "The Nature of the Firm", he wrote: *"In a system based on competition, there must be some optimal level of planning. This is due to the fact that the company, being a small planned association, could only continue to exist in the case of fulfilment of the coordinating functions at a lower cost than those that are required in the implementation of co-ordination by market transactions, and if these costs are lower than those costs in other firms. To have an effective economic system, it is not only necessary to have markets, but also for there to be planning within organisations"*. Thus, R. Coase has established the relationship of the institutional structure and transaction costs. Hence, the fourth principle of the theory of institutional modelling is that the *institutional structure of the economic system can be measured by the cost of transactions in the formation and maintenance of given economic institutions*, in like manner to Coase's assessment of transaction costs of institutions of the firm.

K. Arrow (1961) defined transaction costs as the operation costs of the economic system. Arrow compared the action of transaction costs in the economy with the effect of friction in physics. On the basis of a similar assumption, the inference can be made that that the nearer the economy to the general equilibrium model, the lower the level of transaction costs obtaining in it, and vice versa.

In the interpretation of D. North (1991), transaction costs "consist of the costs of assessing the useful properties of the object of exchange and the costs of ensuring rights and coercion to comply with them." These costs may serve as a source of social, political and economic institutions. Based on the representations of K. Arrow and D. North, we assume that *the economic valuation of the institute consists in the transaction costs relating to the formation and maintenance of the established norms of interaction between economic agents*. This position can be the formulation of the fourth scientific idea of the theory of institutional modelling.

It should be noted that the transactional theory of economic institutions can be formulated on the basis of the above considerations, which includes the ability to model the transactional functions. An analysis of published studies on the introduction of the function of transactions shows that, apparently, a clear representation of the form of such a function can be based on the classical definitions of the essence of transaction costs, with the developed relations being verified subsequently. The classic definition of transaction costs belongs to T. Eggertsson (2001): "In general terms, transaction costs are the costs that arise when individuals exchange ownership rights to economic assets and enforce their exclusive rights." However, he also notes that a clear definition of transaction costs does not exist, since in neoclassical theory there is no correct determination of the production costs. R. Matthews proposed the following definition: "The fundamental idea of transaction costs is that they consist of the costs of drawing up and conclusion of the contract, as well as the costs of supervision over compliance with the contract and ensure its implementation,

as opposed to production costs, which are the costs of the actual performance of the contract” (Matthews, 1986).

Recent definitions allow three key dependencies of transaction costs to be derived from the parameters of economic systems. According to Eggertsson, transaction costs are directly proportional to the number of economic agents entering into contracts with each other. However, in accordance with the definition of Matthews, transaction costs are inversely proportional to the number of contracts and established norms that ensure the implementation of these contracts. If we assume contracts to refer to formal institutions, but norms ensuring the implementation of these contracts are understood as informal institutions, it is possible to qualitatively simulate the dependencies of transaction costs on major institutional parameters of economic systems. In this case, the exogenous firm transactional function will have the form of transaction costs proportional to the number of counterparties of the firm and data costs inversely proportional to the number of formal and informal institutions that ensure the relationship between the firm and its counterparties.

The object of the theory of transaction costs is to explain the problems of the effectiveness of certain economic transactions in a specific institutional framework, i.e. the ability of different organisational forms to carry out effective planning and implementation of economic goals. The basis of this theory is the assumption that any action in the economic context is primarily due to costs. In general terms, transaction costs are costs that arise when individuals exchange ownership rights to economic assets and ensure their exclusive rights. Like other costs in economics, transaction costs are opportunity costs; as such, they can be either constant or variable.

R. Matthews (1986) proposed the following definition: *“The fundamental idea of transaction costs is that they consist of the costs of drawing up and conclusion of the contract, as well as the costs of supervision over compliance with the contract and ensure its implementation, as opposed to production costs, which are the costs of the actual performance of the contract”*. Therefore, in accordance with Matthews’ views, transaction costs are all non-manufacturing costs met by business entities. Among the various activities that require certain transaction costs, Eggertsson (2001) included a number of non-production costs. At the level of the firm, a determination of transaction costs may have a strict quantification. The main feature of the separation of transaction and transformation costs is the type of operation that is applied to resources, leading to the appearance of various costs. Thus, transformation costs appear as a result of the transformation of resources. According to the definition of transformation costs, the transformation of resources can be seen in terms of a physical change to the material. Transaction costs are incurred as a result of the exchange of resources. Resources in this case do not change their physical characteristics; however, a reallocation of property rights may take place in this connection.

In terms of an alternative attribute of allocation of transaction costs, it is possible to refer to the nature of these costs. Thus, if the costs arise as a result of uncertainty, the bounded rationality of individuals or opportunistic behaviour, they can be attributed to transactions. In this case, transaction costs consist in the loss of the presence and actuation of the factors listed above, as well as the attempt to anticipate them, i.e., as losses due to risk and costs of insuring risk (Knight, 2003). The attributes discussed above make it possible to divide the transaction and transformation costs, but requires a more specific division of the costs in order to support an analysis of the transaction costs of the production plant. Transformational and transactional costs should be contained within in a single system of organisation of production, in which both the former and latter are strictly defined. This need is due to the necessity of accounting and analysis of transaction costs.

The analysis of types of transaction costs in the organisation allows the formulation of an algorithm of allocation of transaction costs as follows:

- determine key activities in the organisation;

- determine which types of resources are converted into which products within the core business;
- determine the type of process to which costs are allocated;
- if the costs are the costs of the main process, determine whether the costs are costs of transactional areas using a sign of the type of operations performed on resources and the nature of the costs;
- make the final decision about the type of transaction costs. The authors' algorithm of the calculation of transaction costs permits the obtaining of the empirical dependency of the dynamics of publication activity and scientific mobility on changes in the transaction expenses of academic establishments.

3.5 The Evolution of Institutions

A significant number of foreign and Russian studies are devoted to model representations of the evolution of economic institutions. To the prominent domestic developments should be included V. Polterovich's reform theory, B. Mayevski's macrogeneration theory and the self-development theory and systems of A. Tatarkin. Polterovich's (2013) reform theory describes the optimal sequence of the development of the institutional structure of society with the implantation of economic institutions from the outside in terms of avoiding the formation of institutional traps. B. Polterovich's creation of the theory of institutional traps (Polterovich, 1999) enabled the effects of reforms of the Russian economy to be modelled and forecast. On the basis of the principles of coordination, training, cultural inertia, hysteresis and other effects of the formation of institutional traps, an evaluation of the application of certain economic innovations became possible: for example, the well-known position of Polterovich against the introduction of mortgage banking in the Russian context in favour of the introduction of savings and loan banks. This position was articulated prior to the introduction of mortgage lending in the Russian practice of housing construction. However, the mathematical evaluation of the expected results was carried out precisely on the basis of institutional modelling.

V. Mayevsky's and M. Kazhdans (1998) theory of macrogenerations is based on a modelling of the cyclic changes in gross domestic product due to the cyclic introduction of new technological innovations in the real economy. The theory of microgeneration is based on the principle of evolutionary change in the institutional structure when implementing innovations. The general principle uniting the theory outlined above consists in a modelling of the evolution of economic institutions based on a consideration of resource potential and forming the institutional structure of the analysed system. Consequently, the fifth principle of institutional modelling theory comprises a *simulation of the possible evolution of institutions on the basis of a formalisation of resource potential and existing institutional infrastructure of the economic system*, similar to the modelling approach of Polterovich's reform theory and the theory of macrogenerations of V. Mayevsky.

We note that the core institutional description of economic systems consists in the evolutionary nature of the institutional structures. In this sense, the contemporary institutional theory is closely aligned with the evolution of economic theory and can thus be considered as forming a single entity – the institutional-evolutionary theory. At the same time, the results of an empirical study revealed a graph of the evolution of a number of economic institutions: the family and life experience of workers, informal relations, corporate culture, communication out of work hours, the personal appearance of the workers, licensing and training of workers, professional education, research activities, innovation, automation, enterprise management style and realisation of production. Those factors controlling the evolution of economic institutions include endogenous factors – the life cycle phase, area of activity, period of existence, number of employees, percentage of coverage of employee job descriptions – as well as exogenous factors – the impact of external authority and control of the frequency of the company activities (Popov, 2006).

Hence, the fifth scientific idea of the theory of institutional modelling consists in the fact that *simulation of the evolution of economic institutions is possible by evaluating the impact of exogenous and endogenous factors on the dynamics of changes in these institutions*, by analogy with the study of the control factors of the evolution of economic institutions. The applied use of modelling the evolution of institutions is connected with the development of economic and mathematical models of evolutionary processes. The authors of this study have developed an analytical model of the evolution of economic institutions on the basis of the mathematical apparatus of diffusion processes based on previously obtained empirical results of the study of temporal changes of transaction costs. The exact solution of a diffusion model of the evolution of economic institutions suggests sinusoidal dynamic changes of transaction costs and reducing the value of these costs at the end of the life cycle of the economic institution. The solution of the developed model confirms theoretical hypotheses about the wave-like dynamic of the transaction costs and existence of life cycles of economic institutions. The scientific novelty of the developed model consists in an analytical representation of the temporal dynamics of transaction costs, receiving a partial graphical representation in the works on evolutionary economics of R. Nelson and S. Winter. The table below shows the basic principles and ideas behind the discussed theory.

Table 2. Principles and ideas behind the theory of institutional simulation

<i>Level of modelling</i>	<i>Scientific principle</i>	<i>Scientific idea</i>	<i>Application</i>
Design institutions	Compliance with rules of formation that describe the specification of the use of resources	Modelling on the basis of principles of institutional-functional design	Methods of institutional-functional knowledge generation design
Systematisation institutions	Simulation based on the criteria of system performance, which delineate the various functions of institutions	Classification according to coordinates "exogeneity / endogeneity of institution and ownership to individuals or groups of individuals	Procedure for control of endogenous opportunism in the "principal – agent" system
Distribution of Institutions	Modelling based on a hierarchy of the functional filling of established norm data	Hierarchical distribution in the form of institutional atlas, structuring institutions according to established norm data functions	Methods for determining weaknesses in the institutional-functional structure
Measurement of institutions	The institution-functional structure of the system measured in terms of transaction costs	Economic evaluations of the institution consisting in transaction costs	Methodology allocation of transaction costs in the financial statements
Evolution of institutions	Modelling on the basis of the formalisation of the resource potential and existing institutional structures	Modelling of the impact of exogenous and endogenous factors on the dynamics of changes in institutions	Economic-mathematical models of evolutionary processes

CONCLUSION

The process of transitional development began long ago. However, most countries in transition still lack the environment for a satisfactory response due to destructive tendencies, which dominate over creativity. A high price has been paid for neoliberal failures and greedy experiments of self-proclaimed „visionaries“ related to the deficit of legal state and surplus of authority over the people.

Successful implementation of transition depends on the existing social, economic, political and institutional conditions and constraints. Good results are possible only through positive change of values and corresponding mindset and behavior in terms of civilizational achievements. This progress is contrary to dogmatization, absolutization, mythologization, improvisation, self-regulation and monistic choices. Unfortunately, distributional coalitions have created enormous wealth by carteling, and substituting the promised markets by monopolist quasi-competition, and unlawful ways of appropriating the state property and/or rent. They have developed a parasitic influence on public policy. That way, the party in power determines an institutional matrix of the state, politics and society.

Thus, the formation of the theory of institutional modelling as a system of scientific principles and ideas as part of the institutional economic thinking has allowed the following theoretical and practical results to be obtained. Based on the research of previous foreign and Russian scientists, the scientific principles behind the rules of constructing institutions in the design phase are highlighted, modelling on the basis of a systematic presentation of the criteria of functionality, modelling based on the hierarchy of institutional functions, measuring the institutional structure of transaction costs, modelling based on the formalisation of the resource potential and existing institutional structures.

Based on the author's developments, scientific ideas of modelling based on the principles of institutional design are formulated, institutions are classified according to the coordinates "exogeneity / endogeneity – worker / enterprise", a hierarchical distribution of institutions in the idea of institutional atlas is carried out, economic institutions are evaluated according to transaction costs and modelling of the impact of exogenous and endogenous factors on the dynamics of changes in institutions is presented.

The application of the theory of institutional modelling techniques is gained in the institutional design of knowledge generation, management endogenous opportunism in the "principal - agent" system, identifying weaknesses in institutional structures, allocation of transaction costs in the financial statements and economic-mathematical models of evolutionary processes. The formed institutional modelling theory is an effective method for investigating the laws of society from the standpoint of institutional economics.

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